

Attorney's Docket No.: 10559-918001 / P18214

REMARKS

Claims 4-6, 8-12, and 16-25 are pending. Claims 4, 6, 11, and 16 are in independent form.

Claims 1-3 have been canceled pursuant to their withdrawal from consideration and without disclaimer, subject to Applicant's right to pursue the subject matter of the canceled claims in a divisional application.

In the action mailed August 10, 2006, claims 6-8 were rejected under 35 U.S.C. § 112, first and second paragraphs on various grounds involving the trademark TEFLON AF. Claims 6 and 8 have been amended to address the Examiner's concerns. Claims 6 and 8 have also been amended to delete reference to the trademark "CYTOP."

Claims 6 and 7 were rejected under 35 U.S.C. § 112, second paragraph as indefinite. Claim 6 has been amended to address the Examiner's concerns and claim 7 has been deleted, rendering the objection moot.

CLAIM 4

Claim 4 was rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,111,062 to Shirota et al. (hereinafter "Shirota").

As amended, claim 4 relates to a pellicle made by a process that includes fluorinating a surface of an already-formed

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polymeric film using a technique that increases fluorine atoms on the film surface while leaving the bulk unchanged.

Shirota neither describes nor suggests such a pellicle. In this regard, Shirota describes polymers that include a fluorinated alicyclic structure. See, e.g., *Shirota*, col. 1, line 5-9. Shirota's fluorinated alicyclic-structure containing polymers are illustrated in formulae (1)-(4). See *Shirota*, col. 3, line 30-48.

According to Shirota, conventional polymerization approaches for producing these polymers left unstable terminal groups derived from polymerization inhibitors and/or chain transfer agents. See, e.g., *Shirota*, col. 1, line 16-21. Shirota describes that these unstable terminal groups are to be converted to stable groups through contact with a fluorine gas. See, e.g., *Shirota*, col. 1, line 43-47. Shirota's examples that involve exposure to fluorine gas (e.g., Examples 4, 5, 8) thus represent an attempt to convert unstable terminal groups in polymers A and B to stable groups. See, e.g., *Shirota*, col. 7, line 33-43.

It appears that Shirota's unstable terminal groups are distributed through the bulk of Shirota's fluorinated alicyclic-structure containing polymers. In this regard, in discussing the prior art, Shirota speaks of the need to diffuse fluorinating gas into polymer melts to reach the unstable

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terminal groups. See, e.g., *Shirota*, col. 1, line 26-33. There is no indication that the distribution of unstable terminal groups has changed in *Shirota's* technology. For example, in *Shirota's* fluorination procedure, fluorine gas is allowed to diffuse into solutions of fluorinated alicyclic-structure containing polymers for relatively long periods (e.g., ten hours) at relatively high temperatures (e.g., 195 C). See, e.g., *Shirota*, col. 6, line 47-52; col. 7, line 37-40.

Since *Shirota* diffuses fluorine gas into a polymer solution, applicant respectfully submits that *Shirota* neither describes nor suggests a pellicle that is made by a process that includes fluorinating a surface of an already-formed polymeric film using a technique that increases fluorine atoms on the film surface while leaving the bulk unchanged, as recited in claim 4. In this regard, a *Shirota's* polymer solution is clearly not a film. Also, *Shirota* does not fluorinate a surface of an already-formed polymeric film, as recited in claim 4. Rather, *Shirota* is understood to fluorinate the bulk of his fluorinated alicyclic-structure containing polymers.

Accordingly, claim 4 is not anticipated by *Shirota*. Applicant therefore respectfully requests that the rejections of claim 4 and the claims dependent therefrom be withdrawn.

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Claim 4 was also rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent Publication No. 2003/0187168 to Sunaga et al. (hereinafter "Sunaga").

Sunaga describes fluorine-containing cycloolefin polymers. See, e.g., Sunaga, para. [0001]. The generic formula of Sunaga's fluorinated fluorine-containing cycloolefin polymers is illustrated in formula (1). See Sunaga, para. [0014].

Sunaga's fluorinated fluorine-containing cycloolefin polymers are produced by polymerizing a cycloolefin monomer to a ring-opening metathesis polymerization and then fluorinating the metathesis polymerization. See, e.g., Sunaga, para. [0030]. In particular, double bonds in the ring-opening metathesis polymerization are contacted to hydrogen fluoride or fluorine to achieve the fluorination. See, e.g., Sunaga, para. [0326].

It would appear that these double bonds are distributed through the bulk of Sunaga's ring-opening metathesis. Sunaga makes no mention of any partitioning at the surface. Moreover, distribution of the double bonds through the bulk would certainly be consistent with the location of the double bonds on the polymer backbone.

Since Sunaga is understood to fluorinate the bulk of a ring-opening metathesis polymerization, applicant respectfully submits that Sunaga neither describes nor suggests a pellicle that is made by a process that includes fluorinating a surface

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of an already-formed polymeric film using a technique that increases fluorine atoms on the film surface while leaving the bulk unchanged, as recited in claim 4. In this regard, Sunaga does not fluorinate a surface of an already-formed polymeric film, as recited in claim 4. Rather, Sunaga is understood to fluorinate the bulk of his ring-opening metathesis polymerization.

Accordingly, claim 4 is not anticipated by Sunaga. Applicant therefore respectfully requests that the rejections of claim 4 and the claims dependent therefrom be withdrawn.

CLAIM 11

Claim 11 was rejected under 35 U.S.C. § 102(b) as anticipated by Shirota or, in the alternative, under 35 U.S.C. § 102(b) as obvious over Shirota.

As amended, claim 11 relates to a pellicle made by a process comprising fluorinating a surface of an amorphous fluoropolymer, post formation of the pellicle, by a method selected from ion beam fluorination, plasma fluorination, atomic layer deposition, and remote plasma deposition, wherein the surface of the amorphous fluoropolymer is fluorinated while leaving the bulk unchanged.

As discussed above, Shirota diffuses fluorine gas into a polymer solution in what appears to be an attempt to fluorinate

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unstable terminal groups throughout the bulk of his fluorinated alicyclic-structure containing polymers. It is therefore understood that the structural features of Shirota's pellicle will differ from the structural features of the claimed pellicle. For example, the bulk of Shirota's polymer solution will certainly not be left unchanged, as recited in claim 11.

Accordingly, claim 11 is neither anticipated by nor obvious over Sunaga. Applicant therefore respectfully requests that the rejections of claim 11 and the claims dependent therefrom be withdrawn.

Claim 11 was also rejected under 35 U.S.C. § 102(b) as anticipated by Sunaga or, in the alternative, under 35 U.S.C. § 102(b) as obvious over Sunaga.

As discussed above, Sunaga is understood to fluorinate the bulk of a ring-opening metathesis polymerization. It is therefore understood that the structural features of Sunaga's ring-opening metathesis polymerization will differ from the structural features of the claimed pellicle. For example, the bulk of Sunaga's ring-opening metathesis polymerization will certainly not be left unchanged, as recited in claim 11.

Accordingly, claim 11 is neither anticipated by nor obvious over Sunaga. Applicant therefore respectfully requests that the rejections of claim 11 and the claims dependent therefrom be withdrawn.

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CLAIM 16

To advance prosecution, Applicant now addresses the patentability of new claim 16 over Shirota and Sunaga. New claim 16 relates to an apparatus that includes a polymeric pellicle film having a transmissivity suitable for lithography. The pellicle film comprises an amorphous fluoropolymer that includes a treated surface having a composition characteristic of exposure to a fluorinating process, and a bulk having a composition characteristic of remaining unchanged by the fluorinating process.

Shirota and Sunaga neither describe or suggest such a pellicle film. As discussed above, both Shirota and Sunaga are understood to fluorinate the bulk of their polymers and/or polymer solutions. Therein is nothing in either Shirota or Sunaga that suggests that the treated surface of a pellicle film formed using their polymers and/or polymer solutions would have a composition characteristic of exposure to a fluorinating process and a bulk having a composition characteristic of remaining unchanged by the fluorinating process.

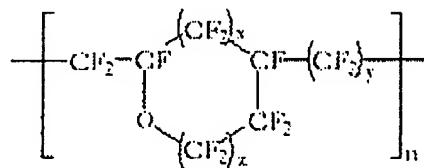
Accordingly, claim 16 and its dependencies are patentable over Shirota and Sunaga.

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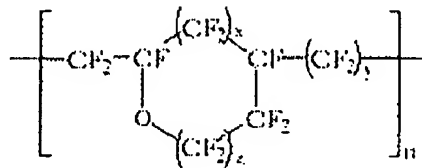
CLAIM 6

Claim 6 was rejected under 35 U.S.C. § 102(b) as anticipated by Shirota or, in the alternative, under 35 U.S.C. § 102(b) as obvious over Shirota.

As amended, claim 6 relates to a polymer pellicle made by a process comprising subjecting a film comprising a PVDF or a material having the structure



, post formation of the film, to ion beam fluorination, plasma fluorination, atomic layer deposition, and/or remote plasma deposition to provide PVDF or the material having the structure

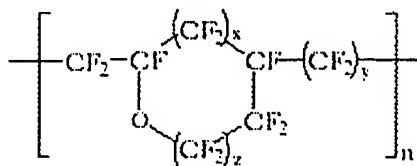


Shirota neither describes nor suggests such a polymer pellicle. In this regard, Shirota describes polymers that include a fluorinated alicyclic structure. See, e.g., Shirota, col. 1, line 5-9. Shirota's fluorinated alicyclic-structure containing polymers are illustrated in formulae (1)-(4). See



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Shirota, col. 3, line 30-48. Please note that neither PVDF nor the material having the structure



is encompassed within the polymers are illustrated in formulae (1) - (4).

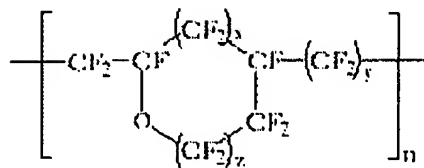
Accordingly, claim 6 is neither anticipated by nor obvious over Shirota. Applicant therefore respectfully requests that the rejections of claim 6 and the claims dependent therefrom be withdrawn.

Claim 6 was also rejected under 35 U.S.C. § 102(b) as anticipated by Sunaga or, in the alternative, under 35 U.S.C. § 102(b) as obvious over Sunaga.

Sunaga neither describes nor suggests such a polymer pellicle. In this regard, Sunaga describes fluorine-containing cycloolefin polymers. See, e.g., Sunaga, para. [0001]. The generic formula of Sunaga's fluorinated fluorine-containing cycloolefin polymers is illustrated in formula (1). See Sunaga, para. [0014].

Please note that neither PVDF nor a material having the structure

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is encompassed in the polymer illustrated in formula (1).

Accordingly, claim 6 is neither anticipated by nor obvious over Sunaga. Applicant therefore respectfully requests that the rejections of claim 6 and the claims dependent therefrom be withdrawn.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Applicant asks that all claims be allowed.

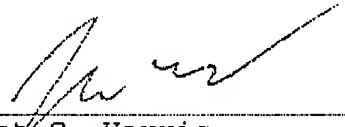
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Please apply the Request for Continued Examination fee in  
the amount of \$790 to Deposit Account No. 06-1050.

Respectfully submitted, BY  
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